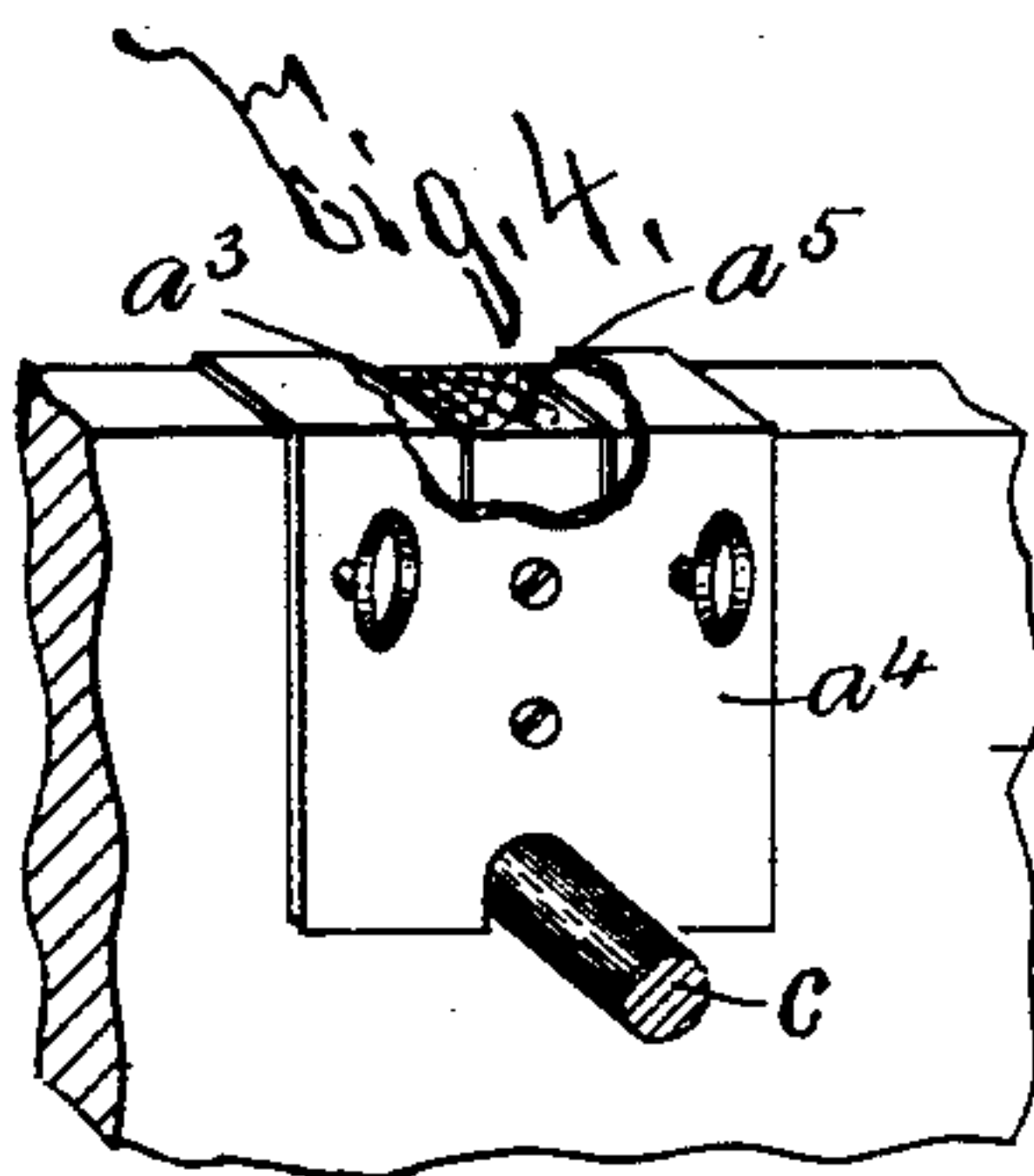
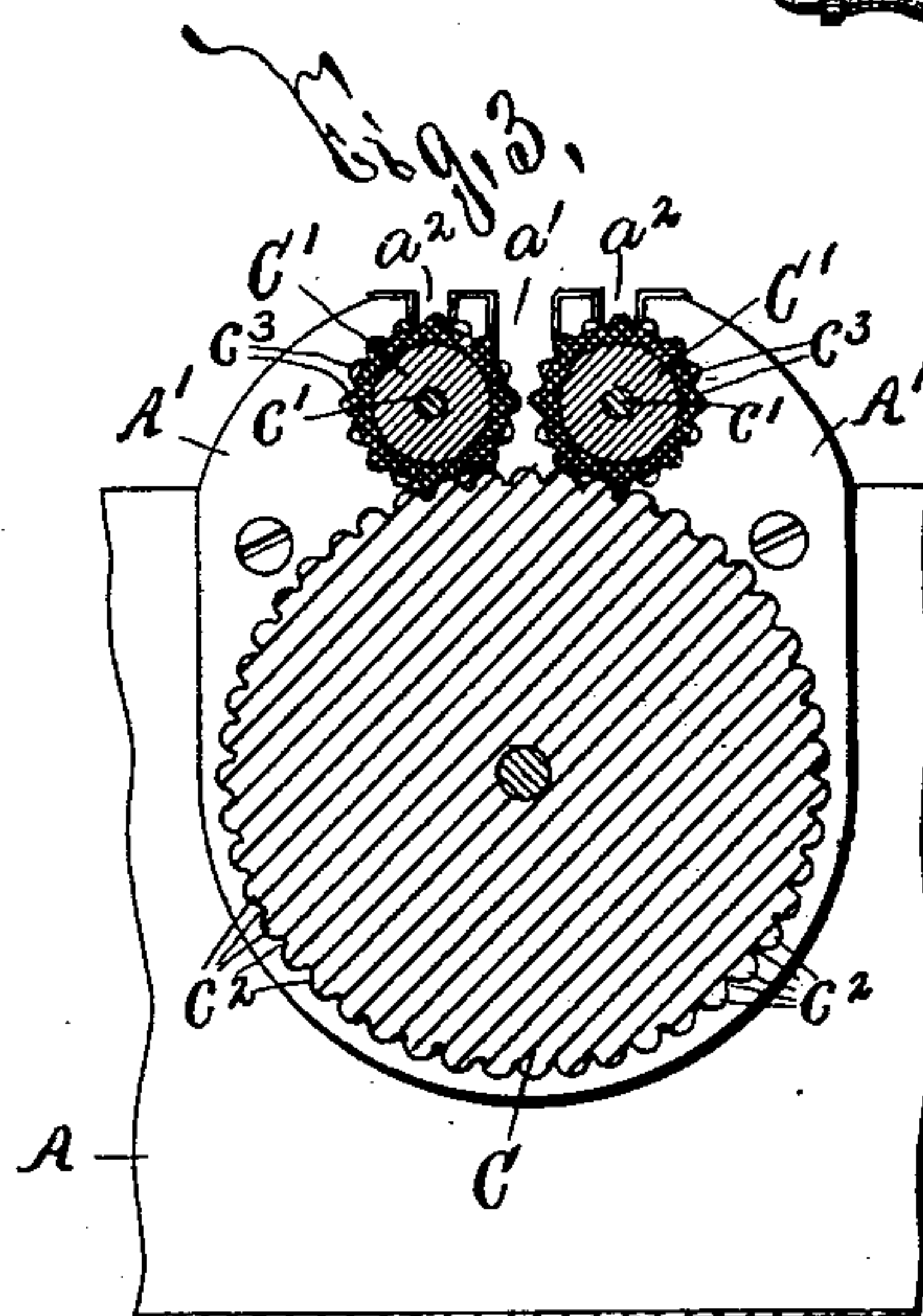
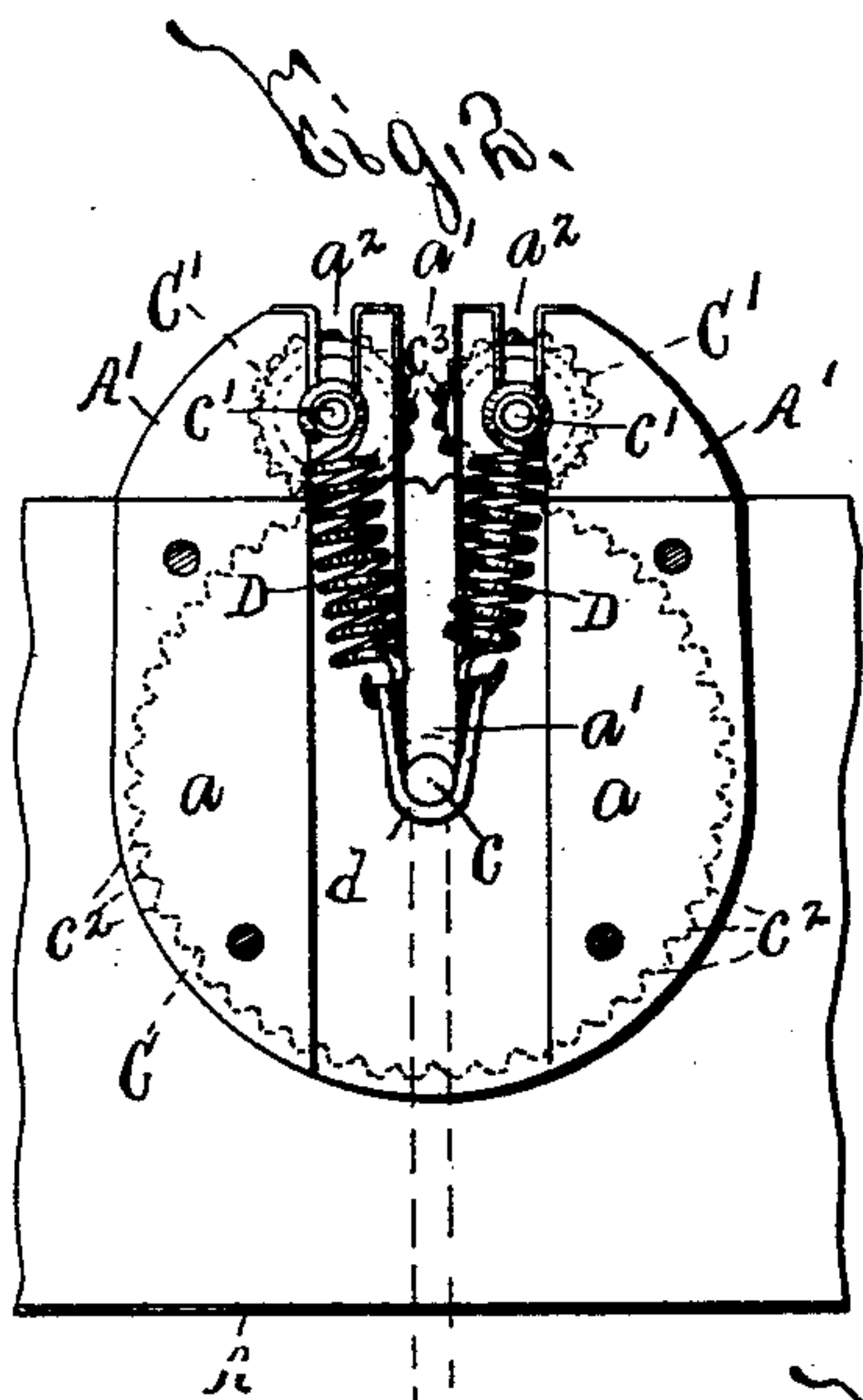
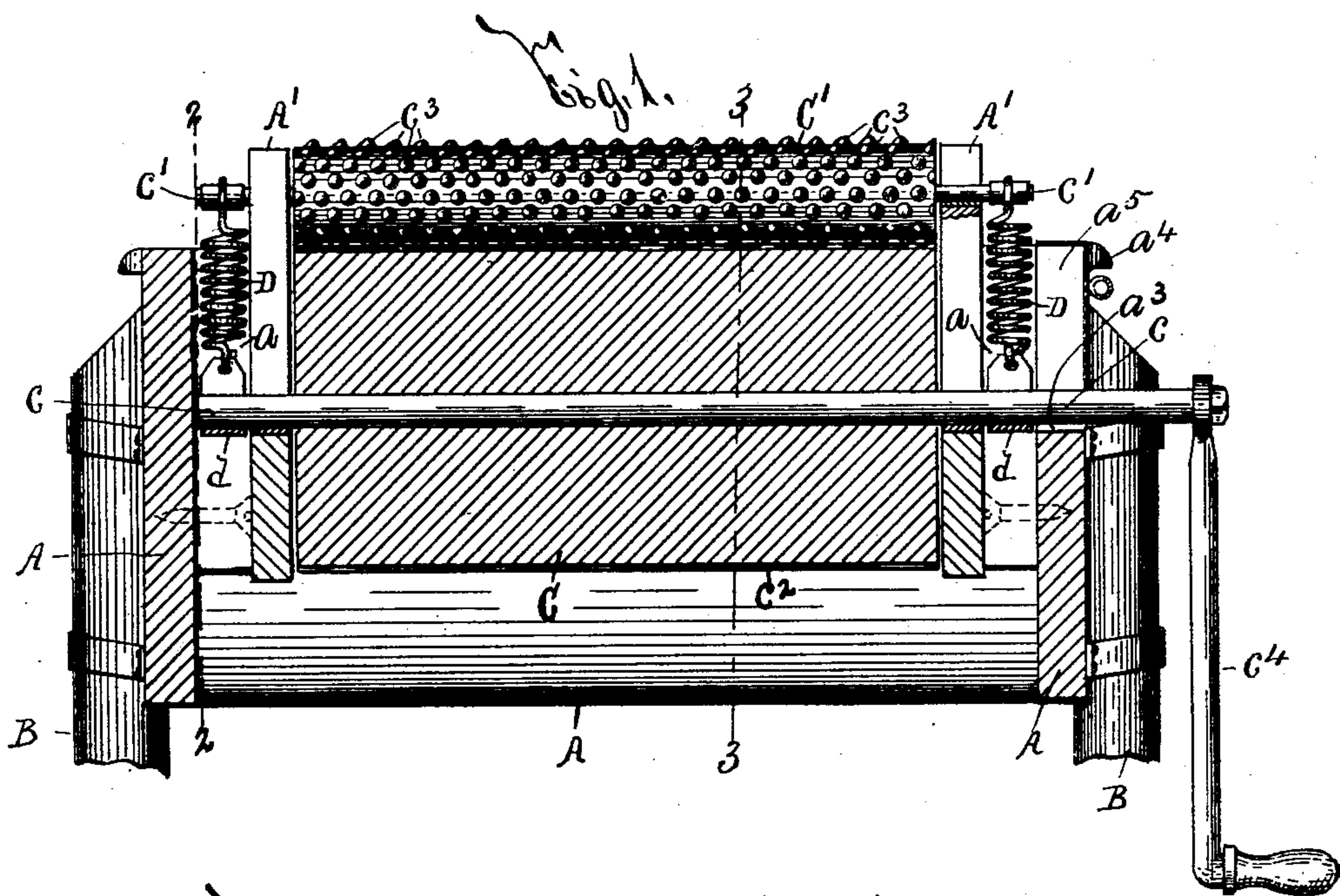


(No Model.)

G. W. SPOONER.  
WASHING MACHINE.

No. 591,643.

Patented Oct. 12, 1897.



WITNESSES:

*H. C. Chase*  
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BY

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ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GEORGE WELLINGTON SPOONER, OF SYRACUSE, NEW YORK.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 591,643, dated October 12, 1897.

Application filed July 17, 1896. Serial No. 599,480. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WELLINGTON SPOONER, of Syracuse, in the county of Onondaga, in the State of New York, have invented  
5 new and useful Improvements in Washing-Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in  
10 washing-machines, and has for its object the production of a device which is particularly effective in operation and is strong and durable in use; and to this end it consists, essentially, in the general construction and arrange-  
15 ment of the component parts of the washing-machine, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming  
20 a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is a transverse vertical section of my improved washing-machine, the lower  
25 portions of its supporting-standards being broken away. Figs. 2 and 3 are vertical sections taken, respectively, on lines 2 2 and 3 3, Fig. 1; and Fig. 4 is a face view of a detached portion of my improved washing-  
30 machine.

A represents a tub or receptacle for the water and the clothes to be cleaned, B suitable standards for said tub or receptacle, and C C' C' rollers for washing the clothes.

35 The tub or receptacle is of any suitable form, size, and construction, and the inner faces of its opposite sides are each preferably provided with substantially parallel ribs  $a$ , to the inner faces of which supporting-pieces  
40 A' are removably secured by screws or other fastening means. The rollers C C' C' are usually provided at their opposite ends with projecting trunnions or spindles  $c$   $c'$ , generally formed by rods passed longitudinally  
45 through said rollers. The trunnions or spindles  $c$   $c'$  are journaled in the supporting-pieces A' and are preferably arranged in the lower ends of slots  $a'$   $a^2$ , extending down-  
50 wardly from the upper edges of said supporting-pieces. The slots  $a'$  for receiving the trunnions or spindles  $c$  are preferably considerably longer than the slots  $a^2$ , which are

arranged on opposite sides of the upper ends of the slots  $a'$  and receive the trunnions or spindles  $c'$ .

The roller C is formed with lengthwise cor-  
rugations or flutes  $c^2$  in its periphery, which  
55 are preferably separated somewhat unequally from each other, and the rollers C' are of less diameter than the roller C and are usually  
60 provided with lengthwise rows of substantially semispherical projections  $c^3$ , which project from their peripheries, enter the corrugations or flutes  $c^2$ , and engage the ribs interposed between said corrugations or flutes.  
65 The lengthwise rows of the projections  $c^3$  are usually separated a less distance than the corrugations or flutes  $c^2$ , and the projections of each row are usually arranged out of alignment with the projections of the next adja-  
70 cent rows, as clearly seen at Fig. 1. One of the trunnions or spindles  $c$  of the rollers C is passed through a slot  $a^3$ , which is formed in the adjacent wall of the tub or receptacle A, is alined with the slots  $a'$ , and extends  
75 downwardly from the top edge of said wall of the tub or receptacle A. This slot  $a^3$  is normally closed by a cap  $a^4$ , which is removably secured to said wall of the tub or recep-  
80 tacle and is provided with a rib  $a^5$ , arranged in slots  $a^3$  for holding said trunnion  $c$  in position. The outer end of said trunnion or spindle  $c$  is provided with a crank  $c^4$ , and  
85 owing to the engagement of the projections  $c^3$  and the ribs formed by the corrugations or flutes  $c^2$  the crank  $c^4$  operates to simultaneously revolve the rollers C C' C'.

Suitable springs D operate to constantly force the rollers C' C' toward the roller C and are connected to the trunnions or spindles of  
90 said rollers. The springs D are preferably formed of coiled spring-wire and are arranged between the ribs  $a$ . The upper ends of said springs are secured to the trunnions or spindles  $c'$ , and their lower ends are connected to  
95 the opposite upturned extremities of substantially U-shaped straps  $d$ , having their central portions passed beneath the trunnions or spindles  $c$ .

It is sometimes desirable to repair or re-  
100 place the tub or receptacle A, one or more of the rollers C C' C', and the springs D, or to use the tub or receptacle A for other purposes, and in that event said rollers and springs



may be readily withdrawn from the tub or receptacle upon removing the cap  $a^4$  and elevating the rollers, together with their springs, until the trunnions  $c$   $c'$  are withdrawn from the slots  $a'$   $a^2$ .

The described arrangement and construction of the rollers  $C$   $C'$   $C'$  and their corrugations or flutes  $c^2$  and the projections  $c^3$  is particularly practical and effective, as the projections  $c^3$  do not, when first engaged with the corresponding corrugations or flutes, exactly register therewith, although, owing to the action of the springs and the continued rotation of the rollers  $C$   $C'$   $C'$ , said projections finally enter said corrugations or flutes. Consequently the rollers  $C'$   $C'$ , when revolved by the roller  $C$ , are forced up and down, even though the thickness of the clothes engaged thereby is uniform, and as the projections  $c^3$  register with the corrugations or flutes  $c^2$  they rub along the sides of said corrugations or flutes in substantially the same manner as the knuckles of a washerwoman's hands rub along the corrugated surface of the washboard. The separation of the projections  $c^3$  of each row of said projections and the arrangement of the projections of one row out of alinement with the projections of the next adjacent rows also adds greatly to the practicability and utility of my invention.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a washing-machine, the combination of a tub or receptacle  $A$  having its opposite sides provided with separated ribs  $a$ , supporting-pieces  $A'$  secured to the ribs  $a$ , a roller

$C$  having its opposite ends provided with trunnions journaled in the supporting-pieces  $A'$ , additional rollers  $C'$  movable toward and away from the first roller and each having its opposite ends provided with trunnions journaled in said supporting-pieces, substantially U-shaped straps or connecting-pieces  $d$  interposed between the ribs  $a$  and having their central portions arranged beneath the trunnions of the roller  $C$ , and spiral springs  $D$  interposed between the ribs  $a$  and having their lower ends connected to the opposite extremities of the straps or connecting-pieces  $d$  and their upper ends connected to the trunnions of the rollers  $C'$ , substantially as and for the purpose specified.

2. In a washing-machine, the combination of a tub or receptacle  $A$  having one of its sides formed with a slot  $a^3$  extending downwardly from its upper edge, supporting-pieces  $A'$  secured to the inner sides of the tub or receptacle  $A$ , and formed with slots  $a'$  alined with the slot  $a^3$ , a roller  $C$  having its opposite ends provided with trunnions  $c$  removably mounted in the slots  $a'$   $a^3$ , and a cap  $a^4$  removably secured to the wall of the tub or receptacle formed with the slot  $a^3$ , said cap being provided with a rib  $a^5$  arranged in the slot  $a^3$  for holding the adjacent trunnion  $c$  in position, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 29th day of June, 1896.

GEORGE WELLINGTON SPOONER.

Witnesses:

K. H. THEOBALD,  
H. E. CHASE.